



Transportation News

A Resource for Military Transportation Engineers



Volume 17, August 1999

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Pavement Community Mourns Loss

The pavement community is mourning the loss of one of the best pavement engineers of this century. Oswin Keifer, Jr. passed away on 25 June 1999. In May of 1999 the doctors found a malignant tumor behind his nasal cavity. Os immediately underwent chemo and radiation therapy. The doctors were optimistic because the therapy was shrinking the tumor but the treatments were wearing him down. Os died of a heart attack.

Os Keifer had 52 years of distinguished federal service. He began his career as a 2nd Lieutenant in the U.S. Army Corps of Engineers from 1942 to 1945. During his tour of duty he supervised the construction and renovation of housing, pipelines and over 165 airfields. After the war, he was an instructor for the Aviation Engineer School for the Construction Equipment Branch. After active duty he worked for the U.S. Bureau of Reclamation for 9 years as the Chief Concrete Inspector. In 1960 he joined the Army Corps of Engineers as a civilian. He worked for the Omaha District for 22 years, including 14 years as Chief of the Materials and Airfield Design Section and then transferred to the North Pacific Division in 1982 as the Division's material and paving engineer. The past 12 years Os was the west coast representative of the TSMCX and was still working for the TSMCX upon his death.

As a tribute to Os's dedication and influence on the pavement community the TSMCX is putting together a special issue of *Transportation News*. Any one having special memories, stories, photos, etc. that you'd like to share about Os please send them to USACE, Transportation Systems Center, 215 North 17th Street, Omaha, NE 68102-4978 or fax (402) 221-7261 or e-mail to mary.j.adolf@usace.army.mil by 20 September 1999.

Thank You Readers

Thanks to all of you who sent in your responses to the *Transportation News* Survey. There were a lot of excellent suggestions and ideas for articles. The survey was included in Volume 16 of the newsletter. If you didn't have the opportunity to fill out your survey feel free to send it in at any time, we are always looking for input, or just give us a call at the TSMCX to express your ideas. Your input is invaluable to us. For newsletter suggestions contact Mary Adolf, Transportation Systems Center.

C-17 Aircraft Replaces C-141

The C-141 aircraft is being phased out and being replaced by the C-17 aircraft. As a result, the aircraft classes used for designing airfield pavements are changing. Below is a table reflecting the changes that will be included in the new Pavement Design for Airfields Manual, EI 02C014, AFJMAN 32-1014, NAVFAC DM 21.10 (manual is currently in the review process). The changes have already been incorporated into the PCASE computer programs (available at www.pcase.com).

Air Force Design Gross Weights and Pass Levels for Airfield Pavements

Airfield Type	Design Aircraft	A Traffic Area		B Traffic Area		C Traffic Area		D Traffic Area		Overruns	
		Weight Pounds	Passes	Weight Pounds	Passes	Weight Pounds	Passes	Weight Pounds	Passes	Weight Pounds	Passes
Light	F-15 C/D	68,000	100,000	68,000	100,000	51,000	100,000	N/A	N/A	51,000	1,000
	C-130	36,000	100,000	58,000	100,000	435,000	100			435,000	1
Medium	F-15	81,000	25,000	81,000	25,000	60,750	25,000	60,750	250	60,750	250
	B-52	38,000	100,000	400,000	100	435,000	100,000	435,000	1,000	435,000	1,000
Heavy	B-52*	400,000	100	400,000	100	300,000	100	300,000	1	300,000	1
	F-15 E	81,000	25,000	81,000	25,000	60,750	25,000	60,750	250	60,750	250
Modified Heavy	C-17	580,000	50,000	580,000	50,000	435,000	50,000	435,000	500	435,000	500
	B-52*	400,000	30,000	480,000	30,000	360,000	30,000	360,000	300	360,000	300
Heavy	F-15 E	81,000	25,000	81,000	25,000	60,750	25,000	60,750	250	60,750	250
	C-17	580,000	50,000	580,000	50,000	435,000	50,000	435,000	500	435,000	500
Heavy	C-17	480,000	30,000	480,000	30,000	360,000	30,000	360,000	300	360,000	300
Shortfield C-130	C-130	175,000	50,000 per squadron	N/A	N/A	N/A	N/A	N/A	N/A	175,000	50,000 per Squadron
Shortfield C-17**	C-17	502,000	100,000	N/A	N/A	N/A	N/A	N/A	N/A	502,000	100,000
Auxiliary	F-15	Design loads and passes are determined by the major command.									

* B-52 aircraft will not be included in the mixed traffic design of medium load airfields with less than 200-foot runways.

** For Shortfields with both C-17 and C-130 aircraft design for the C-17 aircraft only.

Note: Shoulders are designed to support 5,000 coverages of a 10,000 pound single-wheel load having a tire pressure of 100 psi.

Army Class IV Design Gross Weights and Pass Levels for Airfield Pavements

Airfield Class	Runway Length	Design Aircraft	Weight (pounds)	Passes
IV	Less than or equal to 5,000 feet	C-130*	155,000	75,000
	Less than or equal to 5,000 feet	C-17**	502,000	50,000
	Greater than 5,000 feet but less than 9,000 feet	C-17	580,000	50,000
	Greater than 9,000 feet	C-17	580,000	75,000

* For runways not supporting the C-17 aircraft

** For airfields supporting the C-17 aircraft

Conversion Factors

Kilograms = 0.453 x pounds

Megapascals = 0.006894 x psi

Meters = 0.3048 x feet

Cement Stabilized Drainage Layer



Drainage layers have been on the forefront of controversy lately. Program Managers don't budget for them, Value Engineer's pick them to be one of the first items deleted from



a project, paving Contractors have difficulty laying pavement on the drainage layer, the list goes on. These photos are showing the placement of a cement stabilized drainage layer at Fort

Leonard Wood, Missouri. The drainage layer is under a 1/2-mile stretch of roadway that took 2-1/2 days to place. Placement is by Peltz, a company specializing in the placement of cement stabilized base courses and drainage layers. The paving contractor was very pleased with paving on the stabilized drainage layer. Although stabilizing the drainage layers with cement increases the cost of a project, it is a solution to construction paving problems.

Helipad Marking

Looking for helipad marking criteria? Try the following:

For civil helipads: FAA AC 150/5390-2A, "Heliport Design". It can be found on the web site at <http://www.faa.gov/arp/arphome.htm>.

For military helipads:

TM 5-823-4, "Marking of Army Airfield-Heliport Operational and Maintenance Facilities", dated July 1987, Chapter 3.

Air Force ETL 94-01, "Standard Airfield Marking Schemes", dated 5 April 1994, paragraph 4, page 20.

A good specification for helipad marking is CEGS 02763, "Pavement Marking".

Help Needed in Collecting ASR Data

Alkali-silica reaction (ASR) is a problem for some military airfield pavements. Pavement distresses caused by ASR include cracking, spalling, popouts and concrete expansion, which could lead to a reduced load carrying capability, FOD and damage to adjacent structures. Despite the problems with ASR there is no current or future funded research to examine the problems. Nor is there a centralized collection of information on the problems in the military pavement community. Ray Rollings from the U.S. Army Engineer Research and Development Center, Waterways Experiment Station has volunteered to serve as the "informal collector" of information on this topic and distribute the information to those interested. Primary areas of interest are: where does the military have problems with ASR in airfield pavements, what is being done to avoid ASR problems, and what are the most effective methods to maintain pavements undergoing ASR.

Dr. Rollings would like you to contact him if you have current ASR problems or have maintenance procedures that you use to correct the ASR. He will collect and disseminate the information in hopes that a future solution may be found. For more information or to share your information on ASR contact Ray Rollings, Waterways Experiment Station, (601) 634-3892, or send e-mail to rollinr@wes.army.mil.

Who to Call for Publications

Can't find the manual you were looking for on the Net? Then call the Publication Depot for a hard copy at (301) 394-0081/0082/0083 or Fax (301) 394-0084.

Tests for Evaluation of Surface Materials

The following are tests recommended to evaluate surface course materials to determine its properties.

Asphalt Concrete Laboratory Test Requirements

Material Property	Layer	ASTM Method
Specific Gravity and Density of Field Cores	Surface & Intermediate Course	ASTM D 2726 "Standard Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures" ASTM D 2041 "Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures"
Percent Air Voids	Surface & Intermediate Course	ASTM D 3203 "Standard Test Method for Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures"
Extractions (Bitumen Content)	Surface & Intermediate Course	ASTM D 2172 "Standard Test Method for Quantitative Extraction of Bitumen From Bituminous Paving Mixtures"
Aggregate Gradations (Aggregates from Extractions)	Surface & Intermediate Course	ASTM C 117 "Standard Test Method for Materials Finer Than 75-um (No. 200) Sieve in Mineral Aggregates by Washing" ASTM C 136 "Standard Test Method for Sieve Analysis of Fine and Course Aggregates"
Aggregate Specific Gravity (Aggregates from Extractions)	Surface & Intermediate Course	ASTM C 127 "Standard Test Method for Specific Gravity and Absorption of Course Aggregates" ASTM C 128 "Standard Test Method for Specific Gravity and Absorption of Fine Aggregates"
Aggregate Fractured Faces (Aggregates from Extractions)	Surface & Intermediate Course	COE CRD C 171 "Test Method for Determining Percentage of Crushed Particles in Aggregate"
Natural Sand Count (Aggregates from Extractions)	Surface & Intermediate Course	Visual observation of aggregate particles smaller than No. 4 Sieve under a microscope. The percentage of natural sand is calculated by determining the number of sand particles versus the crushed aggregate particles.
Recompacted Samples for asphalt content, Marshal stability, flow, percent voids, and unit weight.	Surface & Intermediate Course	ASTM D 1559 "Standard Test Method for Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus" Include pertinent ASTM's above.

Portland Cement Concrete Laboratory Test Requirements

Material Property	Layer	ASTM Method
Splitting Tensile Strength	Surface	ASTM C 496 "Splitting Tensile Strength of Cylindrical Concrete Specimens"

Free AASHTO Publication Catalog

To receive your free copy of the 1999 AASHTO publication catalog from the American Association of State Highway and Transportation Officials call (800) 231-3475. The catalog contains over 200 titles of technical information available on the design, construction and maintenance of highways and transportation facilities.

Navy Pavement Conference a Success

The annual Navy Pavement Conference, held at the Pearl Harbor Sub Base, Hawaii, 23-25 February 1999, was a great success thanks to the tri-service participation of Army and Air Force pavement engineers. Representatives from the Air Force Civil Engineering Support Agency and the Corps of Engineers Waterways Experiment Station, Construction Engineering Research Laboratory and Transportation Systems Center gave presentations on pavement design and evaluation issues. PCASE programs were presented with several Navy Pavement evaluation teams expressing interest in receiving detailed training.

Topics presented by the Navy included skid resistance evaluations, new criteria for frost and subsurface drainage, and the management of databases for all Navy/Marine Corps airfields (including PCN and PCI data). The Navy also demonstrated the new aircraft characteristic homepage located at

www.mindspring.net/~usc_techsupport/airchar/index.htm.

The Transportation Systems 2000 Workshop was also discussed and the Navy is looking forward to participating in another successful workshop.

For more information on Navy criteria or issues contact Vince Donnally, (757) 322-4204, DonnallyVR@efdlant.navfac.navy.mil.

Navy Adopts FAA Criteria for Skid Resistance

According to Interim Technical Guidance (ITG) the Naval Facilities Engineering Command (NAVFAC) adopted the FAA's criteria for skid resistance on airfield pavement, FAA circular AC 150/5320-12C, "Measurement, Construction and Maintenance of Skid-Resistant Airport Pavement Surfaces". The ITG suggests that FAA criteria be used for specific guidance on determining runway surface friction characteristics, procedures and equipment for measuring surface friction, and maintaining of skid resistant surfaces with the exception that:

- ✂ Chip seals and slurry seal coats shall not be used.
- ✂ Porous friction courses shall not be used.
- ✂ Preferred finish for PCC airfield pavements is either a broom or burlap drag finish.
- ✂ Saw cutting of the finished PCC or HMA pavement is the preferred method of producing grooved pavement. Other methods utilizing plastic grooving should only be used after the contractor has demonstrated his ability to provide grooves without tearing or shearing of the pavement surface.
- ✂ NAVFAC, through the Engineering Field Divisions, will perform friction measurement evaluations, utilizing continuous friction measuring equipment, on naval airfields on an "as requested basis" by the airfield operator or manager. The Navy airfield pavement evaluation teams will also monitor skid resistance as part of the pavement condition surveys done approximately every four years.
- ✂ The airfield operator or manager should undertake a program to locate and assess hydroplaning potential for areas that hold water after rainfall. Those areas that present a hazard to landing aircraft should be repaired as soon as possible. The pavement should be monitored for the presence of rubber build up in the tough-down areas. Removal of rubber shall be at his direction. All methods of removal in the AC are acceptable provided they do not present an environmental concern nor damage the pavement surface.

The FAA circular AC 150/5320-12C, "Measurement, Construction and Maintenance of Skid-Resistant Airport Pavement Surfaces", is available on the FAA's Advisory Circular website at www.faa.gov/ARP/150ACS.HTM.

When are Prime Coats Required for Drainage Layers?

According to Ray Brown, National Center for Asphalt Technology, a prime coat is not required when an asphalt surface is placed directly on a rapid drainage material (RDM) layer. A prime coat is not required unless there is a need to protect the material under the drainage layer from water, for example if you have an expansive subgrade soil. Stabilized open graded material (OGM) layers also do not require prime coats, unless again, you need to protect the layer from water. Reference Engineering Technical Letter 1110-3-497, Prime Coats for Asphalt Pavements.

From the Labs...

Portable Seismic Pavement Analyzer

The technology packaged in the portable seismic pavement analyzer (PSPA) was adapted from a larger version of the system known as the seismic pavement analyzer (SPA). The SPA was developed by Geomedia Research & Development for the Federal Highway Administration's Strategic Highway Research Program (SHRP) to diagnose problems with pavements in early stages. The PSPA is a miniature version of the SPA that is capable of monitoring the quality and thickness of PCC slabs. Three different seismic testing techniques are used: 1) impact echo, 2) ultrasonic body wave, and 3) ultrasonic surface wave. The quality is assessed by estimating the Young's modulus and shear moduli from ultrasonic surface wave and ultrasonic body wave velocities. The thickness is determined from results obtained from the impact echo test. The moduli from the PSPA can be input into existing elastic layer evaluation procedures to determine allowable load carrying capacity of pavements. The U.S. Army Engineer Waterways Experiment Station (WES) developed correlations between PSPA velocities and flexural strength of PCC under contract to the U.S. Air Force. Evaluation results are extremely sensitive to the flexural strength of the PCC layer. Presently, there is no method other than laboratory testing to determine the flexural strength of PCC.



PSPA setup for testing

The PSPA consist of a small metal box containing a high-frequency source and two accelerometers. The receivers are connected to a data acquisition system consisting of a portable computer with data acquisition hardware and software. A test sequence requires less than 15 seconds, and the computer automatically outputs the shear modulus, thickness, impact-echo response, and Young's Modulus from the compression wave velocity. WES is fully equipped and staffed to determine material properties of PCC pavements utilizing the PSPA.

For more information regarding SHRP performance grading of asphalt binders, contact Dr. Albert J. Bush, III at (601) 634-3545 or e-mail at bushal@wes.army.mil. General information on WES is available on the web site at <http://www.wes.army.mil>.

CRREL Recycles, Reuses and Reduces

In the past several years, recycling efforts have become widespread both, for their environmental and economics benefits. U.S. Army Cold Regions Research and Engineering Laboratory (CRREL) has combined these benefits in experimenting with recycled materials as pavement aggregate. This is part 2 of a 3 part series of studies being performed at CRREL using recycled materials.

CRREL together with Professor Dana Humphrey from the University of Maine at Orono studied the use of tire chips in gravel roads. Tire chips are made by chopping discarded scrap tires into pieces ranging in size from less than 2 to more than 12 inches. After being chopped, the pieces pass under a magnet that removes any loose steel, which was once a part of the tire's belting. The resulting tire chips are durable, free draining, have an insulating value and are reasonably priced.

In August of 1992, Professor Humphrey designed a test site using rubber tire chips in gravel roads. Professor Humphrey was originally interested in the drainage value of tire chips. CRREL researchers focused on monitoring the thermal performance of the rubber layers using temperature and resistivity sensors and the load-bearing capacity using surface deflection tests.

In the first winter of the test, frost penetrated to 33-35 inches below the surface of the road insulated with the tire chips. In the control section (without insulation) frost penetrated 60 inches below the road surface and produced frost heaves 3 and 6 inches high. The ground water monitor picked up only a slight increase in iron, and no petroleum contamination or contamination of any other sort.

The insulating and drainage properties of rubber tire chips makes recycling stockpiled rubber tires as a road aggregate an ideal solution for disposing of unwanted tire stockpiles, preserving a natural resource (high quality base material) and maintaining gravel roads. For more information on tire chips contact Robert Eaton, CRREL, (603) 646-4209, or e-mail at reaton@crrel.usace.army.mil. To learn more about applications for recycled materials look for future issues of *Transportation News*.

How the Military Traffic Management Command (MTMC) Can Help

What is the Military Traffic Management Command (MTMC) and how can they help the Corps of Engineers? MTMC is a command within the Department of the Army, which provides the Department of Defense worldwide with single port management, transportation, and traffic management services used for the movement of units, personnel, and materiel.

The MTMC mainly interfaces with the Corps through a subordinate command, the Transportation Engineering Agency. The Military Traffic Management Command Transportation Engineering Agency (MTMCTEA) is located in Newport News, Virginia, and provides the Department of Defense with technology application, research, engineering, and analytical expertise to improve:

- ✧ Deployability of U.S. Armed Forces.
- ✧ Transportation modeling and simulation tools to support force projection analysis.
- ✧ Transportability of military equipment.
- ✧ Infrastructure of the Defense Transportation System (DTS).
- ✧ Management and execution of DOD interests in civil transportation engineering programs.

MTMCTEA conducts transportation-engineering studies of highways, railroads, ports, intermodal facilities, and installations. They provide traffic volume studies with automated traffic counting equipment and provide recommendations for traffic control at high accident locations.

MTMCTEA uses computer programs to model an installation's capability to out load equipment and materials in support of the force projection and the rapid deployment programs. These Capability Assessment Studies are usually the basis for many of the Corps' MCA projects that are part of the Army Strategic Mobility Plan. If these studies are referenced in the project justification, the Corps' designers should request a copy to review and insure their design eliminates any transportation-related deficiencies.

For more information contact Mr. Paul Allred, MTMCTEA, at (757) 599 -1117 or (800) 722-0727. Additional information can be obtained from the MTMCTEA web site at <http://www.tea.army.mil>.

FHWA Software for Selecting Best Binder

The Federal Highway Administration has a Windows-based software package, LTPPBind, for selecting the correct performance graded (PG) binder to use when implementing the Superpave mix design system at a particular site. LTPPBind features a database of high and low air temperatures for U.S. and Canadian weather stations and allow users to:

- ✧ Select PGs based on actual temperatures at their site.
- ✧ Use either the original SHRP or LTPP revised temperature models for determining a site's binder PG.
- ✧ Adjust PG selection for different levels of traffic loading and speed.

Copies of the software can be downloaded from the LTPP web site at www.tfhr.gov, by selecting "LTPP" then "Products" on the homepage.

What's Wrong with this Picture?



Read on to find the correct answer

Meet the TSMCX

Wondering who we are at the Transportation Systems Center? This is part two of an 8 part series to introduce each member that makes up the Transportation Systems Center.

Congratulations to the Transportation Systems Center's proud new Papa, Kordon Kiel, whose son, Matthew Kordon Kiel, was born on March 29, 1999. Lucky for mom (Cheryl Kiel), a full-time architect for a private firm in Omaha, Matthew has two older sisters, Nicole (age 14) and Kelly (age 12), to help and play with Matthew. Along with the birth of his son Kordon celebrated his 15th year with the Corps of Engineers. For most of his Corps career he has been involved with airfields: 1-1/2 years in construction, 9 years in design and 4-1/2 years with the Transportation Systems Center. He started work with the Corps even before he received his B.S. in Civil Engineering from the South Dakota School of Mines and Technology. At the Transportation Systems Center Mr. Kiel reviews projects, criteria and army waivers; consults on airfield layouts, designs, construction and materials; provides computer support to the TSMCX; and developed and maintains the TSMCX web site. Kordon enjoys the opportunities the TSMCX provides to be involved with different types of projects and problems. He says, *"We get the chance to work on projects all around the country and get the opportunity to work closer with the other DOD agencies with regards to Airfields and other transportation and/or paving issues. We get to spend a little time on a lot of different projects instead of spending a lot of time on one project; this allows us to get a wider range of experiences."* Outside of work Kordon enjoys all varieties of skiing (water, snow and jet), biking, hunting and playing volleyball, but most of all playing with his new son.



Kordon Kiel, Transportation Systems Center with his new son Matthew

TSMCX Homepage Address Change - Again?

The TSMCX homepage address has changed again and hopefully for the last time! The address is: <http://www.nwo.usace.army.mil/html/tsmcx/tsmcx.html>.

Corps of Engineers Laboratory Libraries

Looking for that elusive publication developed at one of the Corps Laboratories and can't seem to locate it? Let the librarians at the Laboratories put a stop to your search. Below is a listing of points of contact at the Lab Libraries.

U.S. Army Cold Regions Research and Engineering Laboratory (CRREL)

Nancy Liston, Librarian

Phone: (603) 646-4221

Fax: (603) 646-4712

E-mail:

nancy.c.liston@crc01.army.mil

U.S. Army Construction Engineering Research Laboratories (CERL)

Pat Lacey, Library Technician

Phone: (217) 373-7217

Fax: (217) 373-7222

E-mail:

patricia.k.lacey@cer02.usace.army.mil

U.S. Army Topographic Engineering Center (TEC)

Peggy Diego, Library Technician

Mark Weipert, Information Service and Support Branch

E-mail:

peggy.a.diego@tec01.usace.army.mil

or

mark.e.weipert@tec01.usace.army.mil

U.S. Army Engineer Waterways Experiment Station

Debbie Carpenter, Chief Librarian

Phone: (601) 634-4122

Phone Reference: (601) 634-2355/
2543/4122

Fax: (601) 634-2542

E-mail:

deborah.j.carpenter@wes01.wes.army.mil

Plans for the TS2K Wrkshop Firming Up

Although February 2000 seems like a long ways away the Steering Committee has been busy gathering presentations and making preparations for the workshop.

Topics Include

After categorizing the abstracts for papers and presentations the committee was able to select general topics for the workshop. The topics for the workshop sessions include maintenance & repair, evaluation, design, pavement management, railroads, C-17, materials, drainage, construction, criteria, and geotechnical.

Invitations to present have been sent out. If you submitted an abstract or letter of intent to present and you did not receive a letter of acceptance or decline, please contact Mary Adolf, (402) 221-7265, mary.j.adolf@usace.army.mil. A reminder to those presenting papers that the draft paper is due 1 August 1999 and the final paper is due 1 December 1999. For those giving presentations the Fact Sheets and Slides are due 1 December 1999.

Schedule of Events

Sunday

3:00 p.m. On-site registration
3:00 p.m. Exhibitors to set up

Monday

8:00 a.m. – 5:00 p.m. Seminars*
6:00 p.m. – 8:00 p.m. Ice Breaker Reception

Tuesday

8:00 a.m. – 10:00 a.m. General Session with Keynote speaker
10:00 a.m. – 5:00 p.m. Breakout Sessions

Wednesday

8:00 a.m. – 5:00 p.m. Breakout Sessions
5:00 p.m. – 11:00 p.m. Transportation to Riverwalk available (attendees to sign up)

Thursday

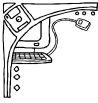
8:00 a.m. – 12:00 noon Breakout Sessions
1:00 p.m. – 5:00 p.m. General Session (Panel Discussion)**

Friday

8:00 a.m. – 12:00 noon Seminars*

* The seminars are different from the workshop sessions in that the seminars may be limited in size, cover the topics in more detail and in some instances provide “hands-on” training. The seminars will be ½ to full day in length compared to the sessions lasting 2 hours with approximately 4 speakers per session. Be sure to fill out the Interest Survey included with the newsletter. Topics with no interest will be dropped from the agenda and topics with high number of responses may indicate the need for repeat seminars, if possible. This is for the Seminars only.

** The panel discussion will be made up of experts from each agency to answer questions on various topics. Workshop participants will have the opportunity to submit questions with their registration package, bring them to the workshop, or just ask them during the discussion. We would like to have a few questions a head of time to make sure we have the appropriate experts available and also for the panel to prepare. Topic ideas generated by the Steering Committee thus far include subsurface drainage, construction problems, and numbering system for DOD documents.



PCASE Web Site Gets a Face Lift



Being lazy and tired of giving out a 30-character address the PCASE homepage has moved to a new shortened address at www.PCASE.com. The site has a new look too.

Once in the site you will be asked to register. Actually you have to register to gain access to the “Downloads” link, but it is to your advantage to register. When filling out the registration you can sign up to be on the PCASE e-mailing list. If on the list, we’ll send you notification of upgrades, new releases and upcoming PCASE events. Once in the “Downloads” we recommend you add this page as a bookmark, that way you can link directly to the “Downloads” instead of having to register every time.

Links on the homepage include...

Workshops - provides information about the PCASE workshops that offer “hands-on” training. Site provides a list of where workshops have been held and future sites.

Downloads - here you can download the programs or perform programs on-line (look for the “E” programs, i.e. E-DRAIN). Within the PCASE homepage you have the option to download from 2 “mirror sites”. The sites are exactly the same, try them both out and use the one that is fastest for you. Also if one site goes down you will still be able to download from the alternate mirror site.

Contact Us - gives points of contact in case you have problems, compliments, or would like to chat about pavements.

Disclaimer - what is a computer program without one?

Support - still under construction but will eventually list problems that other users have experienced with recommended solutions.

Newsletter - link to the *Transportation News* newsletter on the TSMCX homepage.

Trans2000 Conference - link to the Transportation Systems 2000 Workshop web site.

Get on Mailing List - if you already registered you don’t need to go here.

Current Projects - lists the work to be performed on each of the programs currently under development. If you have a suggestion not covered here we’d be glad to consider it. Site also lists some ideas we came up with for future development (when funding is available).

Downloading Made Quick and Easy

The design and evaluation programs are now available for download in packages. This greatly increases the speed of downloading and installing the programs. PCASEDSN.EXE includes the Airfield Design Program (ADP), Road Design Program (ROADS) and the Design Curve Generation Program (DCURVE). PCASEEVL.EXE includes the Layered Elastic Evaluation Program (LEEP), Dynamic Cone Penetrometer (DCP), Electronic Cone Penetrometer (ECP), and Airfield Pavement Evaluation (APE). Once PCASEDSN and/or PCASEEVL are downloaded the user has the option to install all of the included programs or click on specific programs to install. You still have the option to download each of the programs individually.

New Features for the Airfield Design Program

The Airfield Design Program (ADP) now offers the option to design airfield facilities using aggregate surfaces, sometimes termed unsurfaced or expedient, and mats. In the olden days (last month) you needed to run a separate program for aggregate surface designs and we didn’t even have a program for mat design. Now all your airfield pavement design needs are tied up neatly in one program (rigid, flexible, unsurfaced and mat design). The latest version of the program also includes the latest changes to the aircraft classes where the C-17 is replacing the C-141 (see article on page 2). The ADP program can be downloaded from the PCASE homepage at www.pcase.com.

For more information on PCASE contact Mary Adolf, Transportation Systems Center, (402) 221-7265, mary.j.adolf@usace.army.mil or Robert Walker, Waterways Experiment Station, (601) 634-2145, walkerr@wes.army.mil.

SAFETRAN Recommends Replacing Selenium Rectifiers on Railroad Crossings

Replacing the selenium rectifier with a silicon rectifier (Safetran part number 590000-X) on all Power Transfer Shelf Relays manufactured prior to January 1, 1994 is recommended by the SAFETRAN Systems Customer Service Bulletin, No. CSB1-99, dated January 25,



Rectifier

1999. The selenium material used on the Power Off Shelf Relay Rectifier (040387-AYX) has a natural leakage or aging process that will weaken the rectifier over time. Normal life expectancy of these selenium rectifiers is 9 to 15 years. However, the aging process can be accelerated by environmental conditions. If the rectifiers are not replaced they should be checked periodically to insure that the pick-up and drop away characteristics of their relay are within the specified parameters. For more information contact Henry Smith, Art Paulson, or Jim Phelan, from SAFETRAN at (612) 572-1400, extension 286 or 280.



*Transfer
Relay Shelf*

Obtain Publications on the Internet - Publication Search Made Easy

Publications are available just for the searching. More and more Internet sites are making electronic publications available all the time. It just takes a little time to search out the sites to find the document you are looking for. Below is a listing of just a few sites that may have that elusive document.

Air Force

Air Force Departmental Publishing

afpubs.hq.af.mil/

Official source site for Air Force administrative publications and forms.

Air Force Departmental Publications

www.afmc-mil.wpafb.af.mil/pdl/pubs.htm

Contains AFMC, DOD, JCS, MAJCOM, Field Library publications and supplements.

Air Force Materiel Command Publications

www.asc.wpafb.af.mil/cpdc/pubs/AF/index.html

Contains manuals, pamphlets and regulations. Listed by type or series.

Army

Army Corps of Engineers Headquarters Publications

www.usace.army.mil/usace-docs

Army Engineering Publications (except administrative) (TMs & FMs)

Army Corps of Engineers TECHINFO

www.hnd.usace.army.mil/techinfo/index.htm

Current and official engineering and design documents published by Headquarters, U.S.

Army Corps of Engineers. These documents are part of a larger Corps of Engineers document system maintained by HQUSACE.

Army Doctrine and Training Library

www.adtdl.army.mil

Doctrinal and Training Publications (except engineering & medical) (FMs, PBs, TCs & STPs)

Army Publishing Agency

www.usapa.army.mil

Administrative Departmental Publications and Forms (ARs, Cirs, Pams, OFs, SFs, DD & DA Forms)

What's Wrong with this Picture?

If you guessed that the joint sealant is being pulled out by the tank traffic, you are correct. This recent problem has pointed out a conflict that may exist in the Corps guide specification. The contract drawings indicate that the sealant is to be installed 6 to 9 mm below the surface of the pavement, however the specifications stated that installation should comply with manufacturers recommendations. Some manufacturers recommend their sealant to be placed flush with the surface. To avoid this in the future, the guide specification will be modified to state that the sealant should be installed as per manufacturer's recommendations, except the depth of the sealant shall be as shown on the drawings. Designers should make this change in all current projects still under design or advertisement.

Also, the location of this project is in a hot desert area where daytimes air temperatures reach 120 degrees Fahrenheit. The sealant type specified met Federal Specification SS-S-1614. In this hot environment, the sealant still became soft and tacky, enabling the tank's rubber pads to pull it out of the joint. In areas where day time temperatures may exceed 110 degrees Fahrenheit, tanks traffic the pavement, or fuel resistant sealant are required, the designer should specify Federal Specification SS-S-200 sealant or preformed compression seals.

Calendar of Events

Illuminating Engineering Society of North America Annual Aviation Lighting Conference

New Orleans, Louisiana

4 - 7 October 1999

POC: Gene H. Barnes, (425) 450-
2512, Fax (425) 453-9179, e-mail

gbarnes@hntb.com, web site

www.iesalc.org/events

ASCE Annual Convention

Charlotte, NC

17-20 October 1999

<http://www.asce.org>

Int'l Conference on Accelerated Pavement Testing

Reno, Nevada

18 - 20 October 1999

(702) 784-1433

U.S. Hot Mix Asphalt Conference

Orlando, Florida

27 - 29 October 1999

NAPA 1-888-HOT-MIXX

ACI Convention

Baltimore, Maryland

31 October - 5 November 1999

(248) 848-3795

World of Concrete Europe '99

Birmingham, United Kingdom

23 - 25 November 1999

+44 1923 777610

Fax: +44 1923 777810

E-mail: rwest@wocint.tcom.uk

Transportation Systems 2000 Workshop

San Antonio, Texas

29 February - 2 March 2000

<http://www.transportation2000.com>

Transportation News

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[www.nwo.usace.army.mil/
html/tsmcx/
tsmcx.html](http://www.nwo.usace.army.mil/html/tsmcx/tsmcx.html)

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